

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Nebendahl, B.
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TITLE: SCATTERING ATTENUATOR
EXAMINER: Unassigned
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Commissioner For Patents
Washington, D.C. 20231

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Allison Barkman

Name

Allison Barkman

Signature

PRELIMINARY AMENDMENT

Dear Sir:

Please amend the application as follows:

In The Abstract

Please amend the Abstract as follows:

An optical attenuator for attenuating the intensity of an input light beam comprises a scattering element for scattering the input light beam into a range of scattering directions. A beam collecting device is arranged in the range of scattering directions for collecting a portion of the scattered light as an output beam. The

attenuation of the output beam with respect to the input light beam is dependent on the portion of the collected light relative to the range of scattering directions. The scattering element is provided with a varying scattering angle distribution in order to control the attenuation.

In The Claims

Please amend the claims as follows:

3. (Amended) The optical attenuator of claim 1, wherein the particle size and distribution are selected for minimizing wavelength dependency.
5. (Amended) The optical attenuator of claim 1, wherein the scattering element has a wedge-shape and/or the effective thickness of the scattering element is varied in the optical path.
6. (Amended) The optical attenuator of claim 1, further comprising a device for moving the scattering element in order to vary the attenuation.
7. (Amended) The optical attenuator of claim 1, wherein the scattering element comprises a gradient of density of scattering particles and/or a varying surface scattering angle distribution.
8. (Amended) A method for attenuating the intensity of an input light beam, comprising:

 scattering the input light beam into a range of scattering directions,

 varying scattering angle distribution in order to control the attenuation, and

 collecting a portion of the scattered light as an output beam.

Remarks

Claims 1-8 remain in the application.

The Abstract of the Disclosure has been amended to eliminate reference numbers.

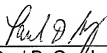
Claims 3 and 5-8 have been amended to eliminate typographical errors and the phrase "the steps of." The claims have also been amended to correct their numbering. As such, claims 3 and 5-8 have been clarified by amendment for purposes of form. It is respectfully submitted that the amendments to claims 3 and 5-8 are neither narrowing nor made for substantial reasons related to patentability as defined by the Court of Appeals for the Federal Circuit (CAFC) in Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., 95-1066 (Fed. Cir. 2000). Therefore, the amendments to claims 3 and 5-8 do not create prosecution history estoppel and, as such, the doctrine of equivalents is available for all of the elements of claims 3 and 5-8.

Consideration and allowance of this application is respectfully requested.

Attached hereto is a marked up version of the changes made to the abstract and claims by the current amendment. The attached page is captioned "Version With Markings to Show Changes Made."

Respectfully submitted,

10-26-01
Date



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In The Abstract

Please amend the Abstract as follows:

An optical attenuator [(10)] for attenuating the intensity of an input light beam [(40, 60)] comprises a scattering element [(70)] for scattering the input light beam [(40, 60)] into a range of scattering directions. A beam collecting device [(90)] is arranged in the range of scattering directions for collecting a portion of the scattered light as an output beam [(100)]. The attenuation of the output beam [(100)] with respect to the input light beam [(40, 60)] is dependent on the portion of the collected light relative to the range of scattering directions. The scattering element [(70)] is provided with a varying scattering angle distribution in order to control the attenuation.

[[Fig. 1 for publication]]

In The Claims

Please amend the claims as follows:

3. (Amended) The optical attenuator of claim 1, wherein the particle size and distribution [is] are selected for minimizing wavelength dependency.

[6] 5. (Amended) The optical attenuator of claim 1, wherein the scattering element has a wedge-shape and/or the effective thickness of the scattering element is varied in the optical path.

[7] 6. (Amended) The optical attenuator of [any one of] claim 1, further comprising a device for moving the scattering element in order to vary the attenuation.

[8] 7. (Amended) The optical attenuator of claim 1, wherein the scattering element comprises a gradient of density of scattering particles and/or a varying surface scattering angle distribution.

[9] 8. (Amended) A method for attenuating the intensity of an input light beam, comprising [the steps of]:

- [(a)] scattering the input light beam into a range of scattering directions,
- [(b)] varying scattering angle distribution in order to control the attenuation, and
- [(c)] collecting a portion of the scattered light as an output beam.